

Appl. No. : **09/651,181**
Filed : **August 30, 2000**

REMARKS

Applicants wish to thank the Examiner for the indicated withdrawal of the previous rejections from the Office Action mailed November 5, 2003. Claims 1, 2, 6, 17, 18, 20, and 29 have been amended, and Claims 4, 5, 11-16, 24-28, and 32-47 are cancelled. Thus, Claims 1-3, 6-10, 17-23, 29-31, and 48 are presented for examination. Reconsideration of the present case is respectfully requested.

Discussion of Rejection Under 35 U.S.C. § 112

The Examiner rejected Claims 18 and 20 under 35 U.S.C §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. More specifically, the Examiner alleged that the term "the wall angle," recited in Claim 18, and the term "said alternatively shaped wells," recited in Claim 20, lack proper antecedent basis in Claim 17. As Claims 18 and 20 no longer recite these contested terms, Applicants respectfully request the withdrawal of this rejection.

Discussion of Rejection Under 35 U.S.C. § 102

The Examiner rejected Claims 1-3, 5-10, 17-23, 29-31, and 48 under 35 U.S.C. 102(e) as allegedly being anticipated by U.S. Patent No. 6,680,206 (McDevitt et al.).

To be anticipatory under 35 U.S.C. § 102, a reference must teach each and every element of the claimed invention. *See Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1379 (Fed. Cir. 1986). "Invalidity for anticipation requires that all of the elements and limitations of the claim are found within a single prior art reference. ...There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention." *See Scripps Clinic & Research Foundation v. Genentech, Inc.*, 927 F.2d 1565 (Fed. Cir. 1991).

Applicants respectfully disagree with the basis of this rejection because McDevitt et al. fail to teach each and every limitation of the rejected claims. More specifically, McDevitt et al. fail to teach a "fiber optic bundle substrate," as recited in the pending claims. It is also noted that the

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Examiner acknowledged that McDevitt et al. do not teach fiber optic bundle substrates in the May 24, 2004 Office Action, on page 6, paragraph no. 7.

As McDevitt et al. do not teach each and every element of Claims 1-3, 5-10, 17-23, 29-31, and 48, a rejection for anticipation is improper. For this reason, Applicants respectfully request the withdrawal of this rejection.

Discussion of Rejection Under 35 U.S.C. § 103

The Examiner rejected Claim 4 under 35 U.S.C. § 103(a) as being unpatentable over McDevitt et al. in view of U.S. Patent No. 6,023,540 (Walt et al.) or U.S. Patent No. 5,690,894 (Pinkel et al.). Applicants respectfully disagree because a proper *prima facie* case of obviousness has not been made.

To establish a *prima facie* case of obviousness a three-prong test must be met. First, there must be some suggestion or motivation, either in the references or in the knowledge generally available among those of ordinary skill in the art, to modify the reference. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991). For example, the Federal Circuit has held that if a proposed modification would render the invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification (*In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984)). Second, there must be a reasonable expectation of success found in the prior art. Third, the prior art must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991).

Applicants respectfully submit that there is no motivation or suggestion to modify the cited art to achieve the claimed invention. More specifically, a skilled artisan would not have been motivated to combine the teachings of McDevitt et al. with Walt et al. or Pinkel et al. to provide a fiber optic bundle substrate having wells with reflective coatings because such a combination would not have worked for the intended purpose of the fiber optic bundles noted in either Walt et al or Pinkel et al.

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Walt et al. disclose a fiber optic array, wherein the beads are located at the distal end of the fiber optic. The optical signal is transmitted to, and collected at, the proximal end of the fiber optic (*See* Walt et al., column 3, line 61 to column 4, line 3). Thus, in order for the array of Walt et al. to be operable, the light signal from a fluorescent microsphere is transmitted along each fiber optic line to a detector at the proximal end. Likewise, the fiber optic bundles disclosed in Pinkel et al. also have two ends; “a sensor end” where the “biological binding partners” bind, and a “transmission end”, where the binding is detected. (*See* Pinkel et al., col. 7, lines 10-14, col. 9, lines 1-25, and col. 11, lines 28-31 and lines 50-53). Thus, the fiber optic bundles described in both Walt et al. and Pinkel et al., rely on a generated signal that is transmitted from one end of the fiber optic line to the other end, where it is detected.

Because the fiber optic bundles disclosed in both Pinkel et al. and Walt et al. rely on the transmission of a signal from one end of the optic line to the other, the use of these fiber optics in conjunction with a reflective coating, as the Examiner has suggested, would render them unsatisfactory for their intended purpose of signal detection. More specifically, a reflective coating on the end of a fiber optic where the signal is generated (the “distal end” as described in Walt et al. or the “sensor end” as taught by Pinkel et al.) of the fiber optic would significantly impede, if not completely block, any signal collection at the opposite end of the fiber optic where the signal is detected (the “proximal end” as described by Walt et al. or the “transmission end” as taught by Pinkel et al.) Because the fiber optics in both Walt et al. and Pinkel et al. are primarily directed to detection assays, any hindrance of the signal collection process would effectively render these assays unsatisfactory for their intended purpose.

This contrasts with Applicants disclosure of fiber optic arrays where the detector is placed opposite the distal end of the fiber optic, and thus does not require the fluorescent signal to traverse the fiber optic line. (*See* page 4, lines 28-32). When using this embodiment of Applicants claimed array compositions, the fluorescent signal is not detected through the optical fiber. Applicants’ fiber optic bundles provide the microsphere wells, and according to the teachings of the specification, the fluorescent signal is not read through the fiber optic lines (*See* page 47, lines 31-34).

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Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *See MPEP §2143.01*. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990).

With these rules in mind, the Examiner has not properly identified any teaching or suggestion within Walt et al., McDevitt et al., or Pinkel et al. or the generally available knowledge that would motivate a skilled artisan to utilize fiber optics with the reflectively coated systems described by McDevitt et al.

The motivation to add reflective coatings is not found within the teachings of either Walt et al. or Pinkel et al. As discussed earlier, Walt et al. and Pinkel et al. are both directed to proximal end imaging. Accordingly, placing a reflective coating on the disclosed fiber optic arrays would render Walt et al. and Pinkel et al. unsuitable for their intended purposes of signal detection since any signal generated by a fluorescent bead would be blocked from traversing the fiber optic line by the reflective coating. Thus, a skilled artisan, having reviewed either Walt et al. or Pinkel et al., would not have been motivated to add a reflective layer to enhance signal collection.

The motivation to combine the cited references is also not found in McDevitt et al. While McDevitt et al. disclose that a detector can be placed both above and below the sensor array (*See* McDevitt et al., col. 8, lines 18-24) it is clear that the detector is placed above the array when the cavities of the array are reflectively coated and that a detector is below the sensor array when the bottoms of the cavities are transparent. (*See Id.* col. 11, lines 3-30). This is logical because, in the first embodiment, the signal is reflected to the detector above, and in the second embodiment the signal travels through the array, and is detected below. Thus, the embodiments of McDevitt et al. that relate to reflective coatings also include signal detectors that are located directly above

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the array. A skilled artisan would not be motivated to use these reflective arrays with the fiber optic bundles disclosed by Walt et al. or Pinkel et al., because these bundles are intended to transmit a signal through the fiber optic to the opposite end for detection, not to reflect the signal directly back to a detector above the array.

As neither McDevitt et al., Walt et al., nor Pinkel et al. provide any motivation or suggestion to make the needed modifications, and the Examiner has failed to cite any motivation within the generally available knowledge, a proper *prima facie* showing of obviousness has not been made. Accordingly, Applicants respectfully request withdrawal of this rejection.

CONCLUSION

Applicants have endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. Accordingly, arguments in support of the patentability of the pending claim set are presented above. In light of the above remarks, reconsideration and withdrawal of the outstanding rejections is specifically requested.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410. If the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference, the Examiner is respectfully requested to initiate the same with the undersigned.

Respectfully submitted,

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